

Tuesday, 12/5/2006 8:10:13 AM  
Kim Johnston

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: 350/355 AS X-TUBE AFT
Job Number	: 29762	Part Number	: D350748201
Estimate Number	: 12486	Drawing Number	: IIN-D350-748 PG5
P.O. Number	: N/A	Project Number	: N/A
This Issue	: 12/5/2006 S.O. No. : N/A	Drawing Revision	: A-UNDER REVIEW OK 06-11-05
Prsht Rev.	: NC	Material	: N/A
First Issue	: N/A Type : LANDING GEAR	Due Date	: 1/30/2007 Qty: 1 Um: Each
Previous Run	: 29761		
Written By	: <u>JA 061205</u>		
Checked & Approved By	: <u>JA 061205</u>		
Comment	: Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update qty of MS21042L5 06-09-12 KJ		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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①

Comment: Photocopy bluefile & type labels per PPPD350-748-201 CHG001

CJ

KS 07-01-18

2.0	29762A	X-TUBE AS 350/355 HI AFT
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Comment: Sub-Component X-TUBE AS 350/355 HI AFT  
D350-748-241 B

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1  
Pick Packing Kit

4.0	D35001	350 SADDLE
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
350 SADDLE  
Batch: 1328096

5.0	D35011	BUSHING
-----	--------	---------



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)  
BUSHING  
Batch: 1329799

7/6/554

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:13 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 29762

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M103962 ✓

7.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M102552 ✓

8.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M102115 ✓

9.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M103591 ✓

10.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M103041 ✓

11.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M102552 ✓

12.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M102536 ✓

2/6/5 SQ,

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/06/07  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:13 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 29762

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

*10/6/7* *QC70748201* ①

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-201

Location: \_\_\_\_\_

PPP Rev: *A*

*10/6/7* ① *SG*

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

*10/6/07* ①

Job Completion



*LA 07-06-07*

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

3.10 Apply a continuous bead of Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class B2 sealant in the following locations as per Figure 6:

- A) Along saddle/crosstube interface.
- B) Between the saddle flanges.
- C) Along saddle/skidtube interface.

#### 4.0 WEIGHT AND BALANCE

The following weight and balance information is for Dart crosstube installations only. This data should be similar to the existing installation. Differences from the parts removed are the responsibility of the installer.

DART CROSSTUBE	FWD/AFT	WEIGHT	STA	MOMENT
D350-748-101	Fwd	35.2 lb (16.0 kg)	106.3 in (2.70 m)	3742 lb-in (43.2 kg-m)
D350-748-201	Aft	34.7 lb (15.7 kg)	162.4 in (4.12 m)	5635 lb-in (64.7 kg-m)

#### 5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

\* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 29762

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Revision: A  
Date: 06.05.08





Date: Tuesday, 12/5/2006 8:10:43 AM  
User: Kim Johnston

# Process Sheet

<b>Customer</b> :	C0-DAR001 Dart Helicopters Services		<b>Drawing Name</b> :	X-TUBE AS 350/355 HI AFT	
<b>Job Number</b> :	29762A		<b>Part Number</b> :	D350748241	
<b>Estimate Number</b> :	12483		<b>Drawing Number</b> :	D350-748-241	
<b>P.O. Number</b> :	N/A		<b>Project Number</b> :	N/A	
<b>This Issue</b> :	12/5/2006	<b>S.O. No.</b> :	N/A		
<b>Prsht Rev.</b> :	NC		<b>Drawing Revision</b> :	UNDER REVIEW D	
<b>First Issue</b> :	N/A	<b>Type</b> :	LANDING GEAR		
<b>Previous Run</b> :	29761A		<b>Material</b> :	N/A	
<b>Written By</b> :			<b>Due Date</b> :	1/30/2007	<b>Qty:</b> 1 <b>Um:</b> Each
<b>Checked &amp; Approved By</b> :	[Signature] 061205				
<b>Comment</b> :	Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update cadplate process 06-09-12 KJ				

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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**Comment:** DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D350-748-241 CHG001

2

N/A

2.0	D6018125	Crosstube Material
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Crosstube Material

D6018-125

2.299" OD X 2.000" ID

Batch: 27-172

-1

061207

1

3.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs on both ends as per Folio FA647

2-Turn first side as per Folio FA647

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

061208 1

4.0	QC1	INSPECT ALL DIM TO DIM SHEET
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**Comment:** INSPECT ALL DIM TO DIM SHEET

061208

1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:43 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 29762A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA647

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

3-Scribe part # as per Dwg D350-748-241

BG 06-12-08

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

BG 06-12-08

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

SA 06-12-08

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Remove all Machining Marks

DP/JB 06-12-15

9.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 2725

C-LOG 112115

Heat Treat to min 180 KSI As per Dwg D350-748-241

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

①

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformaty is attached

PC 7/01/12

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:43 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 29762A

Part Number: D350748241

Job Number:



Seq. #:	Machine Or Operation:	Description :
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11.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

7/01/29

12.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
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Comment: HAND FINISHING RESOURCE #1

Oil inside of tube with LPS-3.

A/R LPS-3

Batch:

1103581

DP

7-3-16

13.0	BENDING	BENDING MACHINE
------	---------	-----------------



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

DP 7-3-16

14.0	QC6	DIMENSIONAL CHECK
------	-----	-------------------



Comment: DIMENSIONAL CHECK

7/03/210

15.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Remove all marks from tube within limits of D350-748-241

2-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs,  
Set-up drill table as per QSI 010

3-Deburr

4-Engrave Part # and Batch # as per Dwg D350-748-241

87 07-05-01

Jb 7-4-17

16.0	QC6	DIMENSIONAL CHECK
------	-----	-------------------



Comment: DIMENSIONAL CHECK

7/05/08

17.0	OUTSIDE SERVICE	OUTSIDE SERVICES
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Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 3730

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per QQ-P-416F, Class 1, Type 2

CL0705109  
0

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:43 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 29762A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

Embrittle relief at 375° for 8 hours, Chromate Treat  
Possible Supplier: Southwest United Industries  
Ensure Certificate of Conformity is attached

18.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage  
Ensure certificate of conformity is attached

*07/06/040*

19.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*20706-040*

20.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Paint Outside of Tube as per Dart QSI 005 4.2

*RT 07-06-06*

21.0

QC14

Inspect Spray Paint



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

*20706-07 (1)*

22.0

D35021

SUPPORT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch: *28476*

*RT 07-06-07*

23.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: *32020*

*RT 07-06-07*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Date: Tuesday, 12/5/2006 8:10:44 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 29762A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Insert

Batch: 19393

RT 07-06-07

25.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Washer

Batch: 107641

RT 07-06-07

26.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: 102712

RT 07-06-07

27.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Screw

Batch: 18836

RT 07-06-07

28.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

RT 07-06-07

29.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

20706-07 (1)

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/06/07

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 12/5/2006 8:10:44 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 29762A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

AP1

B 29762

Po 1/6/7 (1)

31.0

QC21

FINAL INSPECTION/W/O RELEASE



(1)

Comment: FINAL INSPECTION/W/O RELEASE

207186107

Job Completion



U of de 07

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

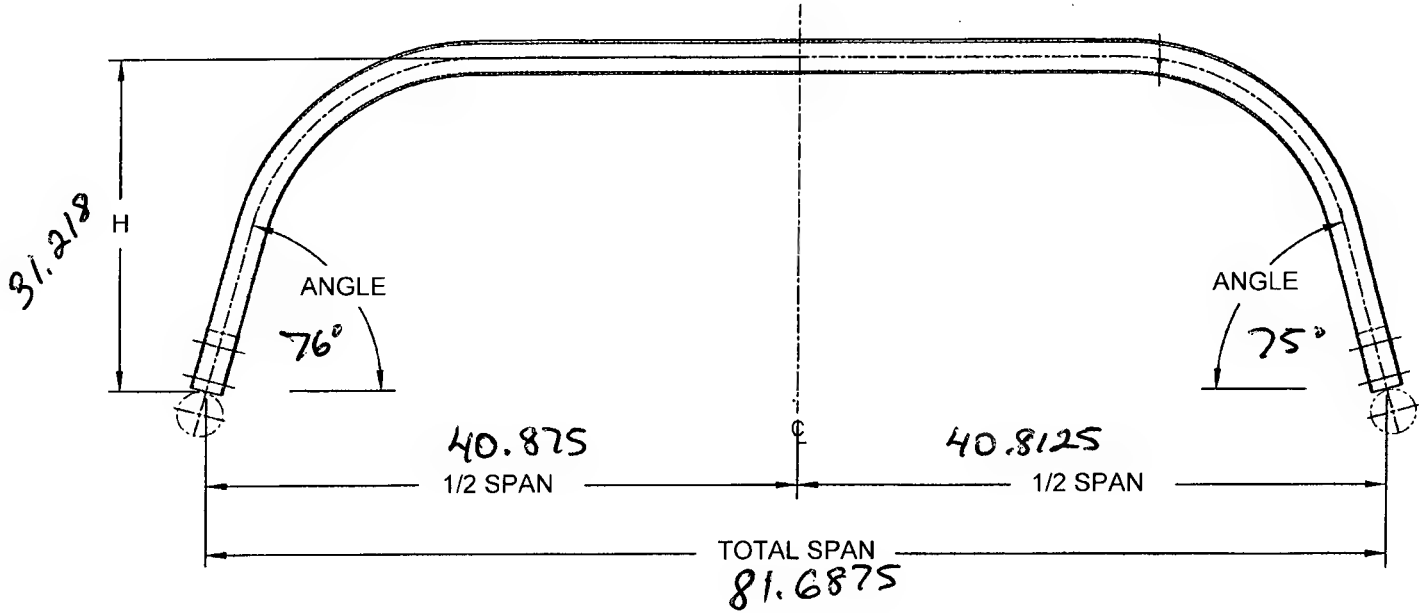
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Crosstube Bend Dimension Sheet



PART NUMBER: 350 748 241

BATCH NUMBER: 29762A

DRAWING 350 748 241 REVISION: A

H: 31.35

1/2 SPAN: 40.9

TOTAL SPAN: 81.8

ANGLE: 75°

QC 15: 11

DATE: 07/03/21

QTY: 1





DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>HH</i>	APPROVED <i>HH</i>	DRAWING NO. D350-748-241	REV. 0 SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

RELEASED

06.10.31 *HH*

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

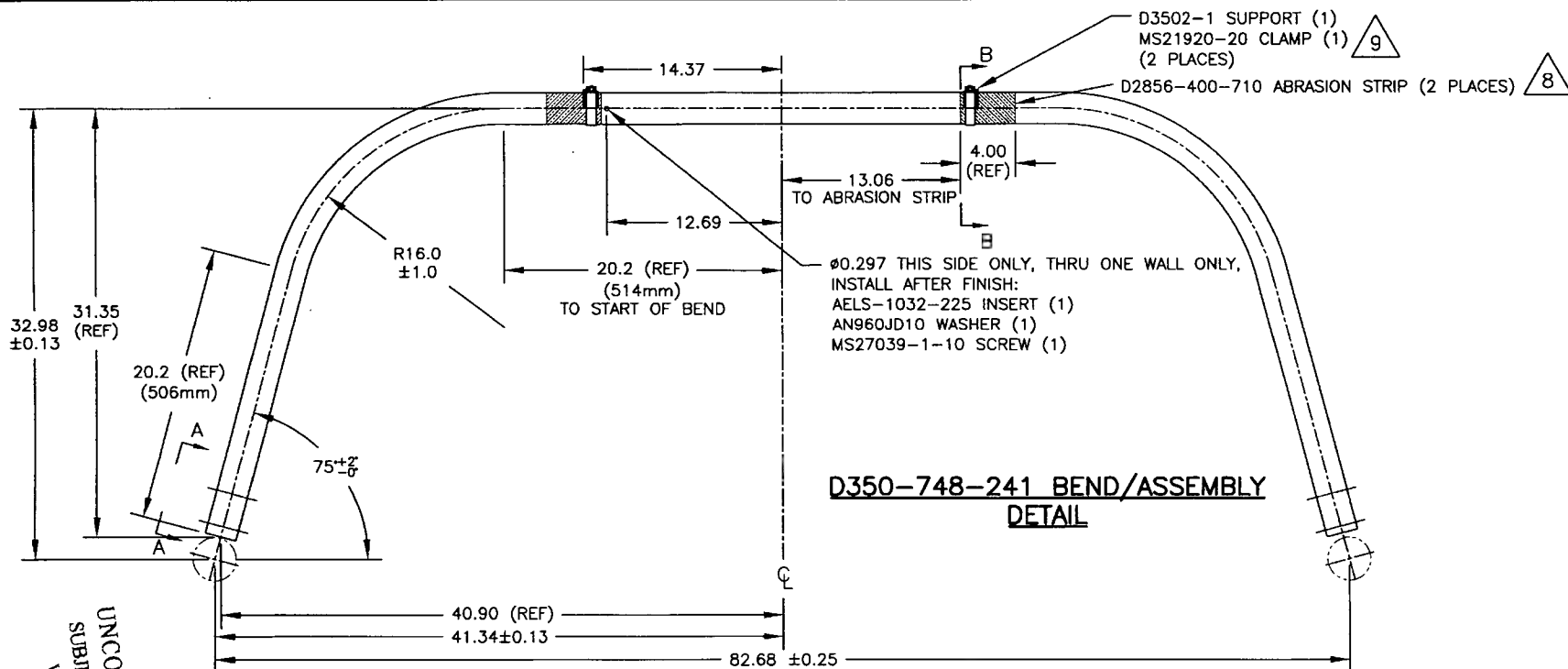
**D350-748-141 CROSSTUBE:**

- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125  
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

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WITHOUT NOTICE  
WORK ORDER  
NO. 29762A

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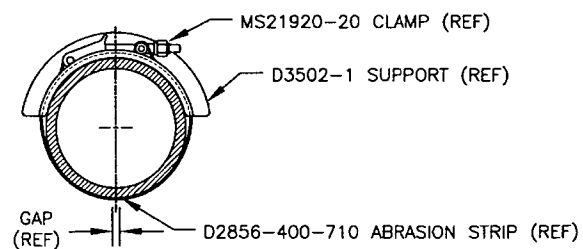
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### D350-748-241 BEND/ASSEMBLY DETAIL

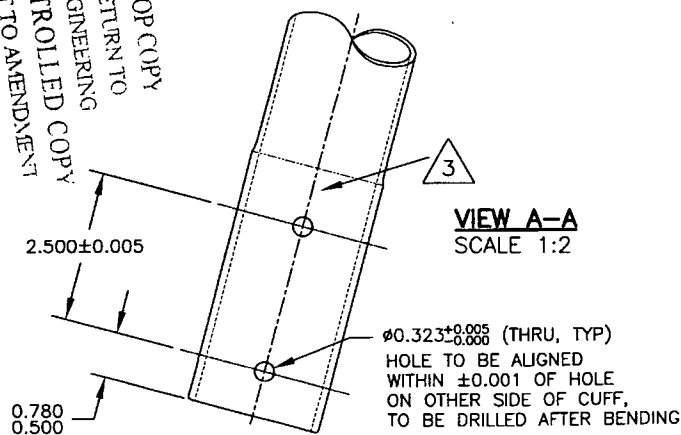
### SECTION B-B

SCALE 1:2



### VIEW A-A

SCALE 1:2



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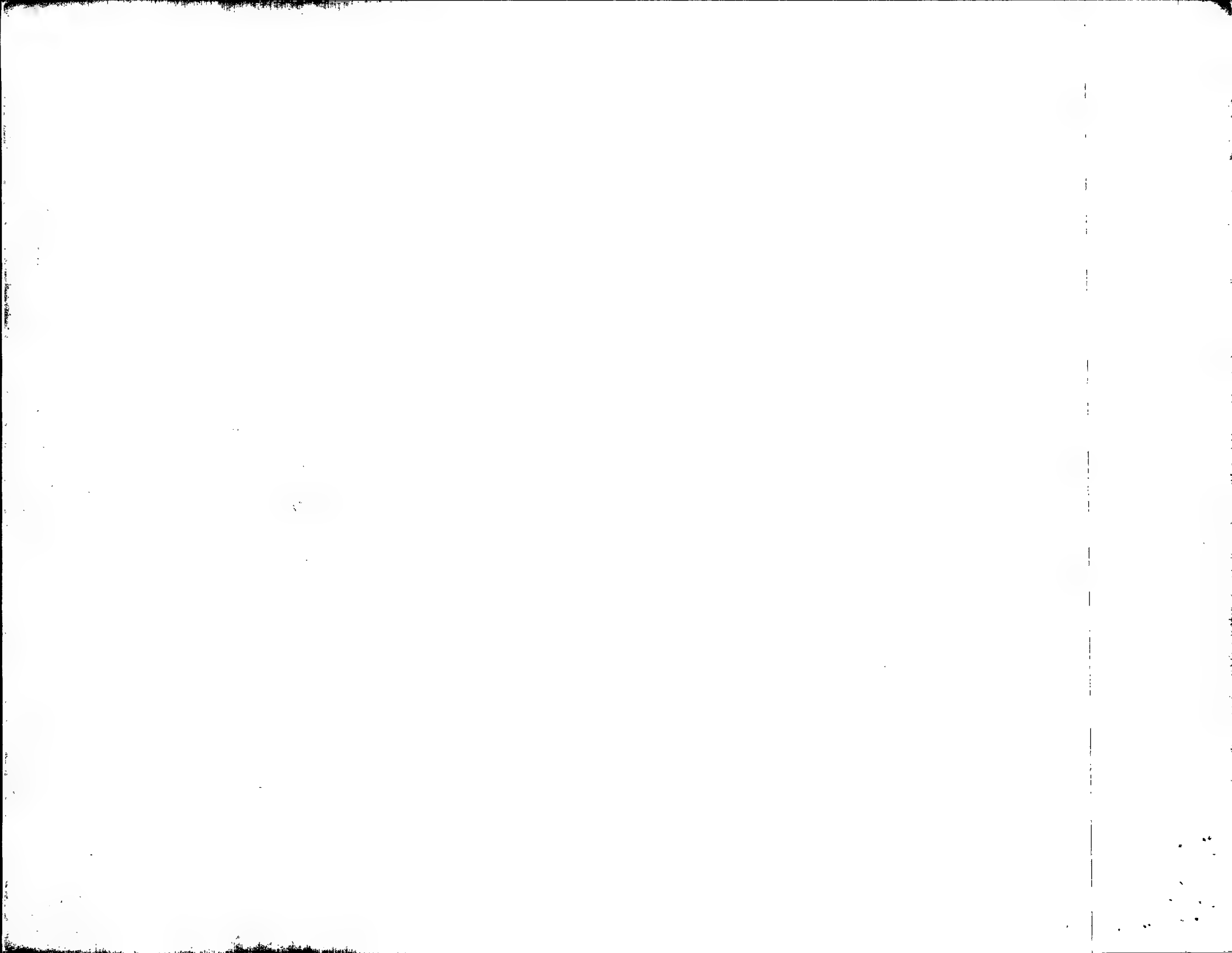
06.10.31

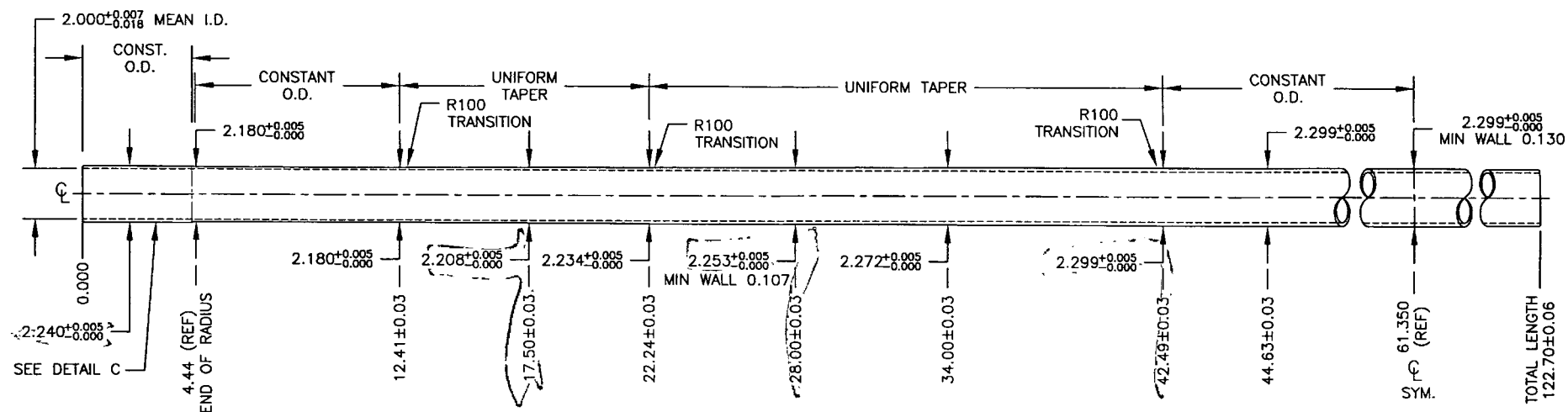
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CHECKED	#	APPROVED	#	DRAWING NO.	REV. D
DATE	06.10.31			D350-748-241	SHEET 2 OF 3
				TITLE	SCALE
				CROSSTUBE (AS 350/355 HI AFT)	1:8

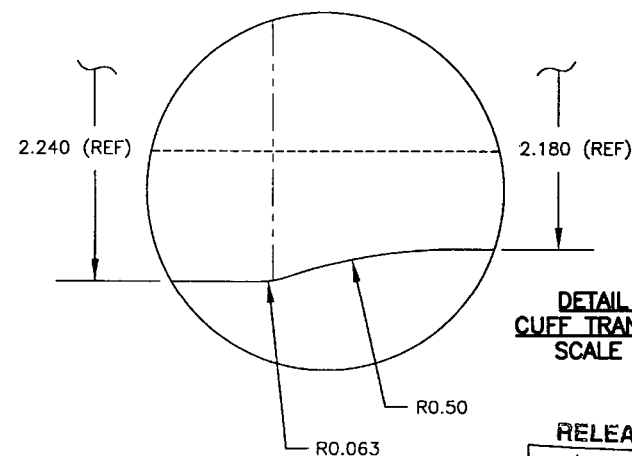
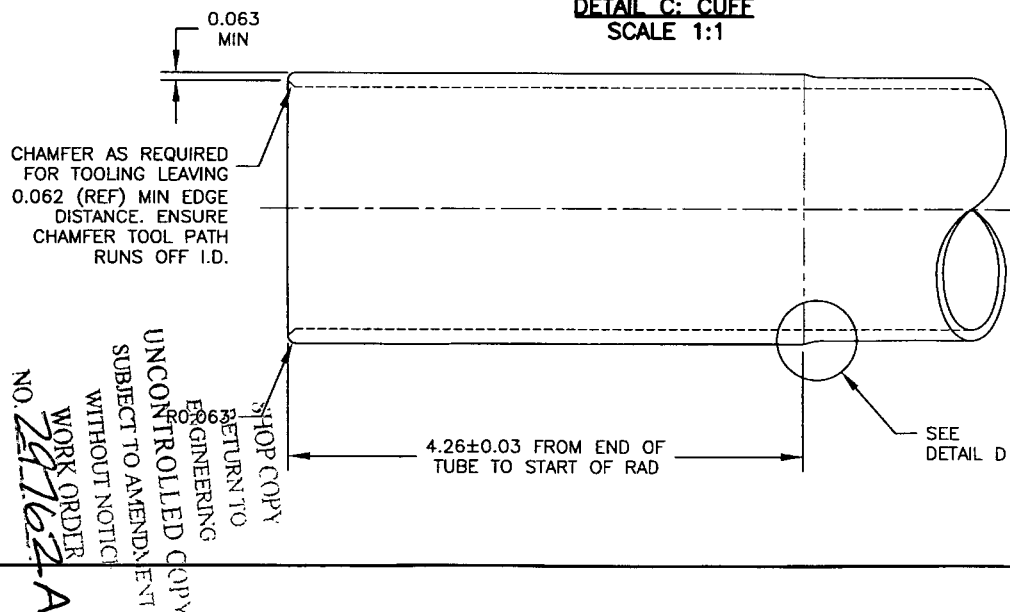






**D350-748-241 MACHINING DETAIL**

**DETAIL C: CUFF  
SCALE 1:1**



**DETAIL D:  
CUFF TRANSITION  
SCALE 9:1**

RELEASED

06.10.31

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DESIGN qp	DRAWN BY qp	<b>DART</b>	DART AEROSPACE LTD. WARRIMUR, ONTARIO, CANADA
CHECKED #	APPROVED #	DRAWING NO. D350-748-241	REV. D SHEET 3 OF 3
DATE 06.10.31	TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE 1:4	



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>
<b>Description:</b> Crosstube Assembly		<b>Part Number:</b> D350748241
<b>Inspection Dwg:</b> D350-748-24 Rev: C		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005 -0.000	2.243	—			
	2.180	+0.005 -0.000	2.185	—			
	2.208	+0.005 -0.000	2.212	—			
	2.234	+0.005 -0.000	2.238	—			
	2.253	+0.005 -0.000	2.257	—			
	2.272	+0.005 -0.000	2.276	—			
	2.299	+0.005 -0.000	2.301	—			
	.063	+0.010 -0.000	.063	—			
	R.50	+0.010 -0.000	.500	—			
	4.26	+0.030 -0.000	4.26	—			
SIDE B	2.240	+0.005 -0.000	2.242	—			
	2.180	+0.005 -0.000	2.185	—			
	2.208	+0.005 -0.000	2.212	—			
	2.234	+0.005 -0.000	2.238	—			
	2.253	+0.005 -0.000	2.257	—			
	2.272	+0.005 -0.000	2.276	—			
	2.299	+0.005 -0.000	2.301	—			
	.063	+0.010 -0.000	.063	—			
	R.50	+0.010 -0.000	.500	—			
	4.26	+0.030 -0.000	4.26	—			
	122.7	±0.06	122.7	—			

<b>Measured by:</b> BG	<b>Audited by:</b> SD	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 06.12.08	<b>Date:</b> 06.12.08	<b>Date:</b>	N/A

<b>Rev</b>	<b>Date</b>	<b>Change</b>	<b>Revised by</b>	<b>Approved</b>
A		New Issue	KJ/JLM	

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	
<b>Description:</b> Crosstube Assembly (AS350/355 High Aft)		<b>Part Number:</b>	<b>D350-748-241</b>
<b>Inspection Dwg:</b> D350-748-241 <b>Rev:</b> C		<b>Page 1 of 1</b>	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**
☐ **Prototype**

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A							
SIDE B							

<b>Measured by:</b>		<b>Audited by:</b>		<b>Prototype Approval:</b>		N/A	
<b>Date:</b>		<b>Date:</b>		<b>Date:</b>		N/A	

<b>Rev</b>	<b>Date</b>	<b>Change</b>	<b>Revised by</b>	<b>Approved</b>
A		New Issue (P/O D350-748-201)	KJ/JLM	



**VAC AERO**  
INTERNATIONAL INC.

**RELEASE NO**

GST No. : R105468102

OAK 82647-1



HEAD OFFICE  
1371 SPEERS ROAD, OAKVILLE, ONTARIO  
CANADA L6L 2X5  
TEL: (905) 827-4171 FAX: (905) 827-7489



2009 WYECROFT ROAD, UNIT B  
OAKVILLE, ONTARIO  
CANADA L6L 6J4  
TEL: (905) 827-7377 FAX: (905) 827-1380



QUEBEC DIVISION  
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC  
CANADA H4S 1C5  
TEL: (514) 334-4240 FAX: (514) 334-6269

01/11/2007

MM / DD / YYYY

PAGE : 1

1DAR01  
BILL TO: DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

K6A 1K7

K6A 1K7

DATE SHIPPED	SHIP VIA	F.O.B.
01/11/2007	EPIC EXPRESS	ORIGIN
CUSTOMER P/O No.	JOB No.	TERMS
PO00002725		COD

PART No.	DESCRIPTION	UOM	QTY ORD	QTY SHPD	TEST RESULTS
D350-CROSS TUBES D350-748-141/241		EA	8	8	
<p>Process Specifications: Procedure: 4353 HEAT TREATED TO 180-200 KSI PER AMS 2759-1C 100% HARDNESS TESTED PER ASTM E-18 HRC 40-43 MATERIAL: 4130</p> <p>REF. PS# 59054 RE: B29758A, B29757A, B29760A, B29765A, B29761A, B29764A, B29763A, B29762A</p>					

**100% HARDNESS TESTED**  
8 pcs.

42/43 HRC

*[Signature]*



*[Handwritten signature]*  
07/09/29

I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC



*[Signature]*  
Authorized Q.C. Inspector



**VACUUM BRAZING - HEAT TREATING - SPECIAL PROCESSING - FURNACE EQUIPMENT  
TURBINE COMPONENT OVERHAUL - PLASMA AND OTHER COATINGS**



**HEAT  
TREATING**



# Packing Slip



## Cadorath Plating Co. Ltd.

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2

Phone: (204) 633-9420 Fax: (204) 633-8033

**Sold To:**

Dart Aerospace Ltd.

1270 Aberdeen St.

Hawksbury, ON K6A 1K7

**ShipTo:****INVOICE NUMBER:**

34601

Net 2% Interest Per Month charged on Overdue Accounts.

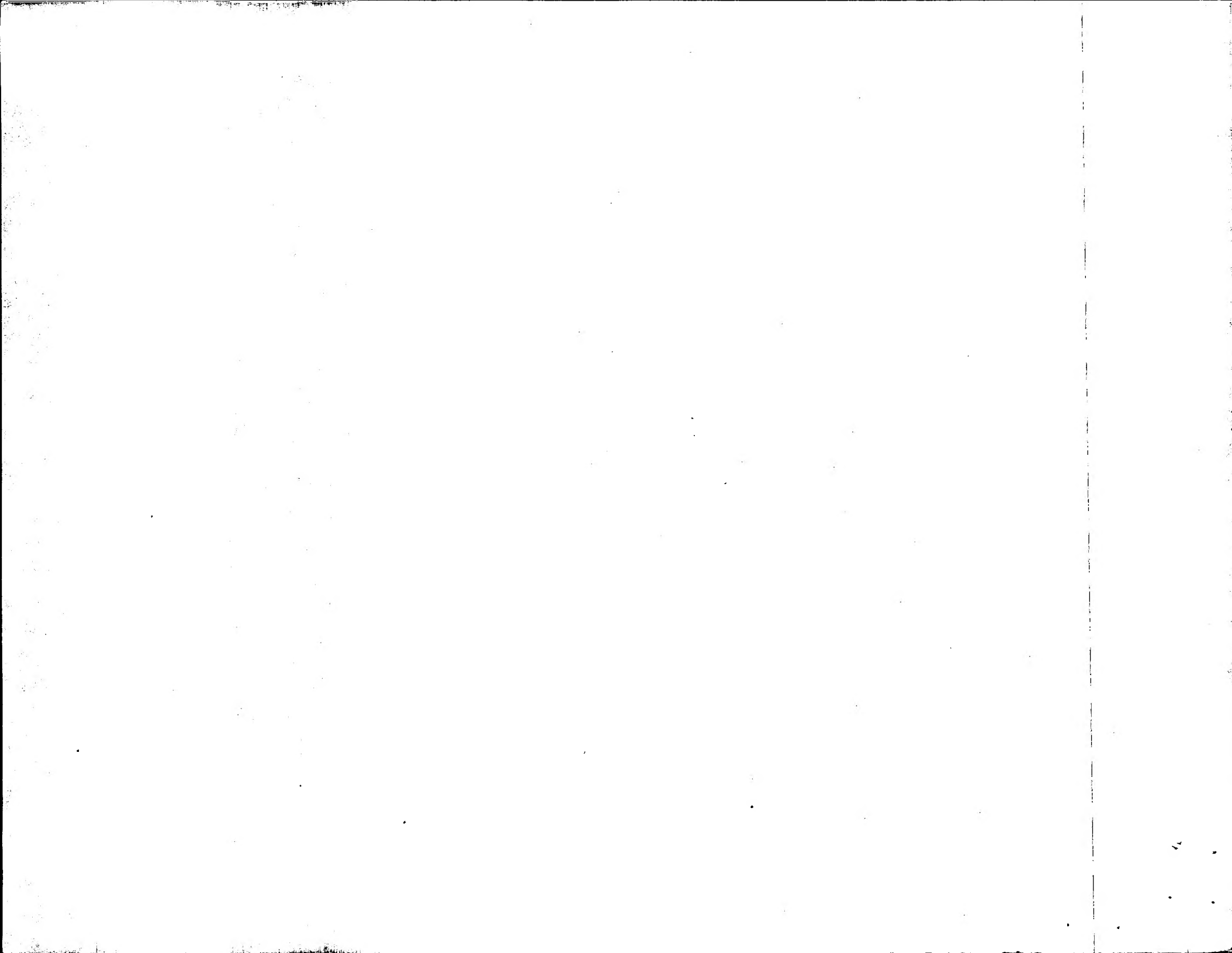
Any claims for shortages, overcharges, or damaged goods must be made within seven (7) days from receipt of goods.

Customer Order #:	Date Received:	Terms:	G.S.T. #:	Ship Via:	Ship Date:
3730	May-15-2007	NET 30 DAYS	10071 6547 RT0001		May-29-2007

**Item # Qty P/N & Description**

1	1 EA SKID	S/N B31013A
	P/N D350748141	W/O 67187
2	1 EA SKID	S/N B31014A
	P/N D350748141	W/O 67188
3	1 EA SKID	S/N B31016A
	P/N D350748141	W/O 67189
4	1 EA SKID	S/N B29762A
	P/N D350748241	W/O 67190
5	1 EA SKID	S/N B29764A
	P/N D350748241	W/O 67191
6	1 EA SKID	S/N B29765A
	P/N D350748241	W/O 67192





**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** May-29-2007

**CONSIGNEE TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 67190  
**INVOICE #:** 34601

**CONTRACT OR  
PURCHASE ORDER #**

3730

**DESCRIPTION:** SKID

**P/N #** D350748241

**S/N #** B29762A

**QTY** 1

CADMIUM PLATE IAW AMS-QQ-P-416 TYPE 2 CLASS 1. MPI IAW  
ASTM-E-1444. BAKE HEAT CHARTS #7795, #7797, #7838.

*[Handwritten signature]*

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.

**Approved Inspector:**

*[Handwritten signature: William Barczyk]*



